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ABSTRACT

Although Mandarin is a discourse topic oriented language rather than a subject and sentence oriented one, Chinese children acquiring Mandarin attempt in their early speech to exactly mark the same referential grammatical relationships as subject, object, location, and instrument by using case or ergative markers. Only after marking a closed set of possible sentential relations with a fixed word order do they move on to control the highly variable open set of context sensitive topic chains which are so crucial to their language. Despite the striking formal differences between Mandarin and other languages, the Chinese children's acquisition strategies are similar to those of children acquiring other languages. Based on a statistical analysis of 135,000 coded, contextualized child Mandarin utterances, five stages for the acquisition of predicates in Mandarin are defined which are believed to exist cross-linguistically. These stages are: single actions; binary actions; enhanced transitivity actions, states, and causes; full predicate systems; and full discourse. It is concluded that the young child's preference for a highly transitive, agentive prototype is adaptive. (RW)

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# WHY CHINESE CHILDREN'S ACQUISITION OF MANDARIN PREDICATES SHOULD BE "JUST LIKE ENGLISH"

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Mandarin is a discourse topic-oriented language rather than a subject and sentence-oriented one. The terms "subject" and "object" fit Mandarin quite badly since there is no agreement for subject, verb, and object, or for person, number, or case. Mandarin, in fact, has virtually no grammatical morphology. And yet Chinese children make great efforts in their early speech to mark exactly the same referential grammatical relationships which synthetic languages mark morphologically as subject, object, location, and instrument by using case or ergative markers. The Mandarin-speaking children first concentrate on clearly marking a closed set of possible sentential relations which are marked by fixed word order. Only then do they move on to control the highly variable, open set of context-sensitive topic chains which are so crucial to their language. They eschew pragmatic topicalization by reordering and sentence final particles until they are nearly four years old; mastery comes only years later. Their preference for entering language via the formal sentential relationships rather than through what might seem to the adult the more intuitively obvious route of socially sensitive discourse topics is all the more striking since Chinese is formally a topic rather than subject-oriented language. Their preference also parallels deaf children's acquisition of the morphology of sign. Bellugi and Klima (1982) found that deaf children generalize from the formal features of sign language rather than from its more mimetic, iconic aspects.

Despite the striking formal differences between the grammars of Mandarin and such diverse languages as English, Russian, Samoan, and Kaluli, the Chinese children's acquisition strategies are eerily parallel. This is because of an underlying cognitive universal tendency to analogize from a high transitive, agentive sentence prototype in contrast to backgrounded, static, patient states (Slobin 1981). Hopper and Thompson (1980) define transitivity as the "kinetic quality" of an event. High transitivity is associated with directed physical activity which has a volitional quality. High transitivity nouns tend to be proper, human, animate, concrete, singular, referential, count, and definite. Highly transitive verbs are willful, punctuate, concrete, and often causative.

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Even very young children are sensitive to this transitive polarity, and can mark it reliably. In ergative languages, the same marker is added to the subject of an intransitive verb such as "she" in "she cries," and to the object of a transitive verb such as "cat" in "she chased the cat." The highly transitive subject of a transitive verb is marked ergatively. Children as young as 26 months old learning Kaluli consistently marked ergativity morphologically (Schieffelin 1979). The young Samoan children studied by Ochs (1982) distinguished ergativity by word order. Slobin's 1981 discussion of



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prototypical transitive events also notes a similar transitivity distinction made by a Russian child who first used the accusative marker only on objects of highly transitive verbs such as "hit," but not with low transitivity verbs such as "see."

Bloom, Lifter, and Hafitz (1980) find evidence of a similar sensitivity to the contrast between actions and states in their study of the acquisition of verb morphology. Irregular past and "-ed" first appeared almost exclusively on high transitive, non-durative, completive verbs which produced clear changes such as "fell" and "broke." Although the progressive "-ing" morpheme appeared at the same time, its use was limited to low transitivity stative verbs, often verbs of internal experience such as "sleeping." Work on the acquisition of perfective versus durative aspect by Antinucci and Miller (1976), and by Bronkart and Sinclair (1973) shows a similar early contrast. All the evidence shows that the child uses the inherent lexical transitivity of the predicate as his fundamental model in ordering grammatical relations. She is next able to mark appropriate agents, patients and other complements by word order using a transitive prototype. Surface markings for grammatical subject and object are added only after this semantically directed analysis is under control. If children were working from the surface structure morphology of grammatical relations which is constantly modelled for them in adult language, we would expect that children speaking languages with case markings to be more consistent in marking sentential relations than Chinese children who receive no such morphological clues. But what we find is exactly the opposite direction of analysis: children learning case-marked languages look first for the same inherent transitivity relations in individual verbs that Chinese children do; surface agreement mechanisms are a relatively superficial second step.

Young children do well at distinguishing the extremes between high transitivity agent-actions such as "I ate the fish," and low transitivity patient-states such as "the flower is pretty." But two intermediate states cause great experimentation cross-linguistically. One intermediate stage is causatives, in which an agent-action causes a change of state in a patient, e.g. "we pressed it flat." The second, which emerges even later, is spontaneous, non-agentive, non-active changes in patient-state such as "the water dried up" or "the cat got sick." Situations in which there is some unclarity about which of the two complements is agent, and which is the patient are particularly ripe for confusion. But when in doubt, the child draws from the agent-action prototype.

The transitivity model works well in analyzing the acquisition of prediction in child Mandarin. More importantly, the particular stages the Mandarin-speaking child goes through in acquiring the full set of predicate relations strongly parallel what we know about predicate acquisition in other languages. I propose that the same five stages in the acquisition of Mandarin predicates will be followed cross-linguistically because of their fidelity to the prototypical relation of the self acting upon an affected object.

My conclusions are derived from a statistical analysis of 135,000 coded, contextualized, child Mandarin utterances. These were taken

from 71 hours of transcribed audiotape of four Chinese mainlander children aged 1.4-3.10 whom I taped at play with their families in their homes in Taipei, Taiwan. Two children were taped for one hour per session every other week for a year; two other children were taped more intensively over two months time as a pilot study. All four unacquainted children, two boys and two girls, showed strikingly similar language acquisition strategies although they differed markedly in amount and style of speech.

Although Mandarin has no case markers, its word order distinguishes sentential relations in a way quite similar to ergative languages. That is, in Mandarin, agents of transitive verbs and patients of intransitives both come before the verb, as in wǒ chī yú, "I eat
I eat fish
fish," and yú hǎo chī "fish is delicious." We can diagram the word
fish good eat
order template as follows:

| | | |
|---|---|---|
| AGENT | ACTION | PATIENT |
| AGENT | ACTION (intransitive) | --- |
| PATIENT | STATE | --- |
| PATIENT | PROCESS | --- |

There is also a marked form for highly transitive completive actions which affect concrete patients. This fronted bǎ object marking variant is sometimes called the "disposal construction" because the end state of the patient must be marked. The bǎ marker is etymologically the verb "to take hold of." In a bǎ sentence the patient is fronted to pre-verbal position, preceded by a bǎ, producing something equivalent to an SOV variant on the basic Mandarin SVO order. For example wǒ chī
I eat
yú "I eat fish (habitually)" can be permuted to the still more tran-
fish
sitively marked bǎ construction, wǒ bǎ yú chīhǎo.le,
I patient fish eat finish perfective
"I've eaten up the fish." Significantly, the bǎ construction may never be used with stative or experiential verbs; *wǒ bǎ yú kàn.le
I patient fish see per-
fective
is not acceptable for the meaning "I saw the fish."

Another feature of Mandarin word order dictates that a patient which spontaneously changes state precedes the verb, as in yīfú
clothes
zāng.le "the clothes got dirty." If, however, an agentive
dirty perfective
cause is named, then the agent precedes the verb while the patient follows, as in wǒ nòngzāng.le yīfú, "I dirtied the clothes,"
I make dirty pfv clothes
"I got the clothes dirty." Stative verbs like zāng, "dirty," are full verbs in Mandarin although they count as adjectives in English. However Mandarin stative verbs may only take patient complements. For causatives one must use a causative action verb, then suffix on its

stative result. Using a stative causatively as in *wǒ zāng.le yīfú is not acceptable.
I dirty pfv clothes

Mandarin-speaking children go through at least five stages in acquiring the predicate system. These are outlined in the accompanying chart. Stage I is an opposition between agent-actions and static things named. The children were at the late one-word stage between ages 1.4 and 1.1; order rules did not yet apply. As the child entered the two word stage between ages 1.10 and 2.2, she entered Stage II, a binary opposition between agent-actions, and mostly static or experiential patient-states. Word order was strict AV and VP for actions such as wǒ huà "I draw" and huà gǒugǒu "draw (a) doggie." But the child had learned that the patients of the very few stative verbs she did control come before the verb, as in xiǎobáitù kěai "(the) little bunny (is) cute." Causatives, patient fronting with bǎ, and spontaneous changes of state other than huài.le "(it) broke" were extremely
bad pfv
rare.

I call Stage III "enhanced transitivity" because as the child developed a three-way opposition between actions, states, and causatives, she generalized so strongly from the agent-action prototype that she double marked transitivity with a large range of special devices. This stage is quite prolonged, lasting from about age 2.3 to 3.2. Finally during Stage IV the child came to be able to mark the full system of actions, states, causes, and spontaneous processes productively if idiosyncratically. However, even at the end of the oldest child's sample at age 3.10, he was still using spontaneous patient-processes only in reference to himself. That is, he would say wǒ
I
zhǎngdà.le "I grew up," or wǒ shēngbìng.le "I got sick," but never
grow big pfv I appear ill pfv
"the flower grew tall" or "the dog got sick." When in doubt, the child still relied on the agentive model. Mastery of the complete system doubtless continues for some years into later childhood. From all evidence, these same stages in predicate development show up cross-linguistically, with the "enhanced transitivity" stage producing a particularly rich variety of overgeneralizations, particularly in causatives. There are numerous evidences of the Chinese children's preference for the highly transitive prototype. I will discuss examples from the following very diverse systems: order, bǎ patient marking, the tā human pronoun, and causatives.

The Taipei children strongly prefer the most generally useful word order, agent-action-patient, which we may abbreviate as SVO. They avoid topicalized, contrastive reorderings which the adult would prefer because the children want to make the closed set of sentential relations clear to themselves as well as to others. VP greatly outnumbers PV until the child is nearly 3½ years old, reflecting the enormously greater percentage of action verbs over statives. The Taipei children do very well with canonical order. They do not, however, play with reordering since sentential reference is far too serious a business to

STAGES OF PREDICATE DEVELOPMENT

| | CHILD | ORDER | PREDICATE TYPES | MODALS | ASPECT | TIME |
|---|---|---|---|---|---|---|
| STAGE I SINGLE ACTIONS (vs. THINGS) one word | Xiao Jing (1.4) | does not apply | virtually actions only, few states; only one morpheme of compound verbs | rare; only as answers to questions | rare, zài "again" "more" | none |
| STAGE II BINARY: ACTIONS vs. STATES late 1-word to late 3 word | Lao Hu (2.0) Niu Niu (1.10) Pang (tapes 1-10, age 1.9-2.2) | pre-order to rigid AV, VP | Simple Agentive actions, some completion markers; copula, experiments w/ experiential & descriptive states, few causatives, spontaneous processes | as answers; spontaneous negatives, hùi "can" for future potential | "Incident" aspect w/ LE for any relevant event or noun, or for perfective regardless of past - future, negative, irrealis, or imperative | very rare děngyíxià "wait a second" |
| STATE III ENHANCED TRANSITIVITY ACTIONS, STATES, CAUSES multi-word | Pang (tapes 11-25, age 2.3 - 2.11) Zhong Rong (2.6 - 2.8) Kang (tapes 1-7, age 2.10 - 3.2) | rigid order AVP to first fronting | burgeoning actions + comp. direction, result agentive, some patient process for motions Statives increase esp. descriptive Statives used causatively | spontaneous affirmative & negative, some irrealis néng "able" gǎn "dare" contrastive w/ perfective | Completion & result w/ verb complement, -.le perfectives, some zài progressive hái "still," unsuccessful attempted action | rarely, time of event xiànzài "now" míngtiān "tomorrow" almost no duration |
| STAGE IV FULL PREDICATE SYSTEM: ACTIONS, STATES, CAUSES & SPONTANEOUS PROCESSES | Kang (tapes 8 - 23 age 3.2-3.9) | re-order experiments APV | Both agent & patient actions Patient-Process actions, Statives for backgrounding instrumentals | most of full system available though often omitted w/ main verb; modals used as evaluative main verbs | Past experience -guò, successful attempt, backgrounding prog. -zhe, contingent events | many event times, ordered & contingent events some duration |
| STAGE V FULL DISCOURSE | (beyond scope of study) | flexible order PAV | more process range, goal more contextualization | differentiated use in all obligatory settings | habit, iterative | full contingency & duration |

experiment with. The very few exceptions come in cases where the agent and patient are semantically ambiguous, as, for example, when Lau Hu, age 2.0, was playing at dipping a tiny car into a cup of water, banging the car against the inside of the cup. He spent several minutes murmuring chē.zi zhuāngdǎo.le "the car crashed,"
car crash pfv
alternating with zhuāngdǎo.le chē.zi "(someone) crashed the car." In this play situation it was indeed hard to determine who was the causer of the crash and who the crashee. It all depended on one's momentary point of view. There is an equivocal phase when children alternate between the pull of the SVO order which they have come to rely on, and the lure of the still more transitively marked bǎ construction. Here we see Pang at age 2.2 changing her mind mid-sentence between the fronted and non-fronted forms. She eschews the fronting mid-sentence and reverts to safe old SVO, as she pulled on a lamp cord saying, wǒ bǎ / lā zhèige, "I this / pull this." This is mid-
I patient pull this
way between wǒ bǎ zhèi.ge lāhǎo.le, "I've pulled this," and
I patient this pull finish pfv
wǒ lā zhèi.ge "I pull this."

When children do begin to do bǎ fronting, they invariably pick appropriately transitive action verbs. They never use bǎ with statives, as in *wǒ bǎ tā rènshi *"I bǎ her know" or *wǒ bǎ zhèi.ge dǒng *"I bǎ this understand." (These are extremely common errors among second language speakers of Chinese whose native language, such as English, differentiates active and passive voice.) This is not to say that Chinese children have an easy time learning bǎ; they make many featural errors, especially in not marking the completion of the action, but they do not use bǎ with statives, nor do they mis-order it in the sentence template. Their errors demonstrate enhanced transitivity. For example, they assume that bǎ can stand alone as a fully transitive dummy verb. (This was historically possible, but not acceptable in modern Mandarin.) The extreme rarity of purely grammatical morphology in Chinese makes this a more reasonable strategy than it is in European languages. We hear sentences like the following: Kang, age 2.10, playing husband, *wǒ bǎ wǒ.de qián
I patient I poss money
mǎi dōngxī. "I bǎ my money (to) buy things." Kang, age 3.2, pre-
buy thing
tended to be a policeman arresting a thief, and said, *Xiǎotōu, nǐ
Robber you
zěm.me bǎ Ø? *Robber, how could you do?"
how patient

A very common childish error is to use a bǎ sentence where a simple transitive SVO is required. This happens particularly in benefactives where the child is boasting about his good deeds. The benefactive form brings the patient-recipient into strong focus, so the child may be using bǎ as an emphatic form to highlight the effectiveness of his actions. Kang, age 3.3, wiped his doll's bottom, then said, *wǒ bǎ tā cā pìgu, *"I bǎ wipe her bottom."
I patient her wipe bottom

Making threats also tempts the child to emphasize his potency by over-using bǎ. Kang, aged 3.9, playing at fencing, said *wǒ ná/ ná
I take take
wǒ.de dāopián bǎ nǐ gē, *"I'll take my razor blade bǎ you
I poss razor blade patient you cut
cut." He should have said wǒ ná dāopiàn gē nǐ, "I'll take a razor blade (and) cut you."

The children also used other directional and benefactive markers to double mark transitivity. For example, Pang, aged 2.3, was scribbling on the table top as she said, *wǒ gěi xiě, *"I'm
I give/benefactive write
giving a write," rather than wǒ xiě, "I'm writing." She also held out her hand for her puppy to lick saying *nòng gěi tā tiántián
make give him/her lick lick
shǒu, *"Make for him to lick (my) hand," rather than ràng tā tiántián shǒu, "let him lick (my) hand."

Evidence of the transitive, animate-agent prototype also comes in the children's preference for using the animate, usually human, tā "he" or "she" pronoun. They often use it incorrectly for an inanimate item in sentence-initial position where it sounds agentive. They should use a demonstrative plus classifier for non-human subjects, but this system is in decline in Mandarin. In one case Kang thoroughly confused his mother as he talked about a TV message to conserve expensive gas. He said, *tā zhǎngjià.le *"S/he got expensive."
she/he increase price pfv
His mother asked shéi? "Who?" twice before getting a clarification.

The final evidence of the children's bias toward transitives is their innovative causatives. In modern Mandarin, virtually all causatives are compounds with an action-process verb followed by a suffixed, stative result. For example, wǒ dǎ.le simply means "I hit at some-
I hit pfv
thing." Suffixing on pò, "break," yields wǒ dǎpò.le "I hit (it) broken," "I broke it." The stative verb can also be used alone to describe non-agentive changes in patient state, as in huāpíng pòle,
vase break pfv
"the vase broke," "the vase got broken."

The Taipei children strongly preferred marking results rather than process. They frequently used the stative resultative verbs in what they clearly intended to be causatives with marked agents. These causatives were often exact parallels of anomalous English causatives investigated by Bowerman (1982) who found *"come her" for "make her come," and *"how would you flat it?" for "how would you make it flat?" The Taipei children followed exactly the same strategy by saying *wǒ
I
lái zhūo.zi *"I'll come the table." Here the child should have used
come table
dàilái "carry-come," "bring." In another example the child wanted me to stretch out my legs flat on the floor. He said, *bǎ Ø
patient
píngqǐlái *"Flat up," rather than fàngpíng "put flat" or "flatten."
flat rise come

In Mandarin, using a stative result verb alone without an agentive head verb means that the first noun in the sentence will be interpreted as a patient rather than an agent. This leads to comical, paradoxical results. Chinese children almost invariably say wǒ huài.le literally, "I'm broken" or "I've gone bad" when they mean wǒ nònghuài.le "I've broken (it)." Both utterances are completely grammatical, but their meanings contrast. In another example the child described spilling some hand lotion by remarking wǒ chūlái.le, literally "I've come out," "I've emerged." What she intended was wǒ dàochūlái. le "I've poured (it) out." In another case the child pretended to cook something disgusting and said, *kěyǐ chòu cài *"(I) can stink the food." A standard construction would be kěyǐ chǎo.de hǎo chòu "(I) can cook it very stinky." These anomalous causatives are striking examples of the child mastering a grammatical form whose interpretation he misconstrues. If grammatical form were the guiding template for the child's choice of meaning relations, we would not see these paradoxical constructions. The very terse grammatical structure of Chinese with its lack of grammatical morphology makes it particularly easy for the child to produce well-formed sentences with unintended literal meanings. (Chinese children do, however, produce ill-formed sentences as well. Their overall error rate increases to about 11% around age 3.6, after which it declines.)

Cross-linguistically, the young child's strong preference for a highly transitive, agentive prototype is clearly adaptive for a number of reasons. It is: 1) informationally economical. 2) It expresses exactly the relations which the child finds most engrossing because it reflects cognitive development modelled on the child's active manipulations of what she sees as a highly animate world. 3) Perceptually, it expresses the fundamental contrast between motion against a static gestalt. 4) Moreover, it targets the most characteristic and productive linguistic subsystems. It is not for nothing that adult linguists focus most of their analysis on active, transitive sentences. 5) Finally, the concentration on active relations matches the overall distribution of predicate types in adult speech input to the child and to other adults. More careful crosslinguistic investigations of the child's gradually developing control of transitivity relations are sure to prove illuminating.

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